

Customer No.: 31561
Application No.: 10/064,703
Docket No.: 9458-US-PA

REMARKS

Present Status of the Application

This is a full and timely response to the outstanding final Office Action mailed on November 15, 2004. The Office Action has also rejected claims 1-4, 6-8, 12-16 and 18-20 under 35 U.S.C. 102(b) as being anticipated by Doi (USP 5,632,821) and claims 1-5, 8-17 and 20 under 35 U.S.C. 103(a) as being unpatentable over Gupta (USP 5,24,375) in view of Doi (USP 5,632,821).

Claims 1-20 remain pending of which claims 1 and 13 have been amended to more accurately describe the invention. It is believed that no new matter is added by way of these amendments made to the claims or otherwise to the application.

Applicant has most respectfully considered the remarks set forth in this Office Action. Regarding the anticipation and obviousness rejections, it is however strongly believed that the cited references are deficient to adequately teach the claimed features as recited in the amended claims. The reasons that motivate the above position of the Applicant are discussed in detail hereafter, upon which reconsideration of the claims is most earnestly solicited.

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Discussion of Office Action Rejections

The Office Action rejected claims 1-5, 8-17 and 20 under 35 U.S.C. § 102(b) as being anticipated by Doi (USP 5,632,821).

As described in detail hereinafter, Applicants respectfully submit that Doi is legally deficient for the purpose of anticipating claims 1 and 13 because Doi fails to disclose each element of the claim under consideration.

The present invention teaches in claims 1 and 13, among other things, performing a cleaning process, performing a pre-deposition process on the chamber to isolate contaminants after the cleaning process, followed by performing a discharge plasma treatment of the chamber. More specifically, the pre-deposition process is performed under a substrate-free condition to isolate contaminants generated from the cleaning process. After the pre-deposition process, the present invention further teaches conducting a discharge plasma treatment to reduce the accumulated charge in the chamber.

Doi, on the other hand, teaches a post treatment method that includes a cleaning step in which fluorine reactive species are introduced to etch the undesired thin film in the reaction chamber. After the cleaning step, a post-treatment gas is introduced into the chamber and a plasma is generated for the post treatment gas to react with and remove the remaining cleaning gas residue. Applicant respectfully disagrees with the office's assertion that an introduction of monosilane and hydrogen and a formation of plasma meets the claimed step of "performing a predeposition process" and "performing a discharge plasma treatment". As a matter of fact,

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the post-treatment gas, monosilane and hydrogen, is for the generation of the plasma, which then reacts with the cleaning gas residues in the chamber. Therefore, Doi is completely silent about a pre-deposition step for isolating contaminants. Further, the plasma used in Doi is for the treatment gas to react with the cleaning gas residue (col. 6, ln. 6-19) and is not for reducing the accumulated charge as accomplished by the discharge plasma treatment of this invention. Moreover, due to the absent of the pre-deposition process to isolate contaminants, even a plasma is generated as taught by Doi, the effect is different from the discharge plasma of the present invention.

For at least the above reasons that Doi fails to teach or suggest each element in the claims, Applicants respectfully assert that claims 1 and 13 patentably define over Doi. Since claims 2-12 and 14-20 are dependent claims which further defines the invention recited in claims 1 and 13, respectively, Applicants respectfully assert that these claims also are in condition for allowance. Thus, reconsideration and withdrawal of this rejection are respectfully requested.

The Office Action rejected claims 1-5, 8-17, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Gupta (US 5,824,375) in view of Doi (US 5,632,821).

With regard to the rejections of claims by Gupta in view of Doi, Applicant respectfully submits that these claims patentably define over the prior art for at least the same reasons as discussed above.

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Gupta teaches a cleaning process by introducing a cleaning gas into the chamber to react with contaminants present within chamber, removing the gaseous reaction products, performing a desorption process to remove sorbed contaminants and seasoning the chamber components. The Office asserts that the desorption process of Gupta can be construed as equivalent to the discharge plasma process and the seasoning of the chamber as equivalent to the pre-deposition of the instant case (see Response to Arguments). However, the order of the two steps is different from what is taught in the present invention. In essence, Gupta teaches performing a desorption process (an alleged discharge plasma process), followed by a seasoning process (an alleged pre-deposition process). Accordingly, Gupta fails to teach or suggest the application of a discharge plasma treatment to remove the cumulated charges resulted from pre-deposition. Further, the seasoning of the chamber of Gupta does not isolate contaminants as taught by the instant case.

Therefore, even Gupta is combined with Doi, the combination still fails to teach or suggest claims 1 and 13 of the invention. Since claims 2-12 and 14-20 are dependent claims which further define the invention recited in claims 1 and 13, respectively, Applicants respectfully assert that these claims also are in condition for allowance. Thus, reconsideration and withdrawal of this rejection are respectfully requested.

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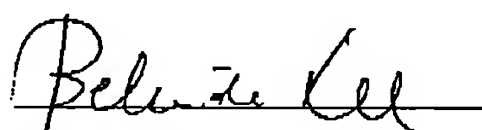
CONCLUSION

For at least the foregoing reasons, it is believed that the presently pending claims 1-20 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

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